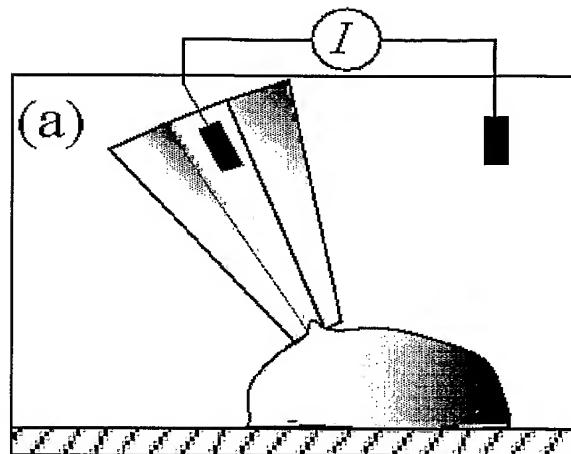
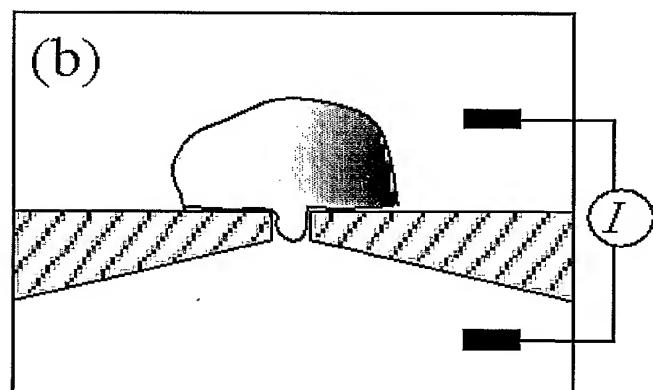


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**FIG. 1A**



**FIG. 1B**

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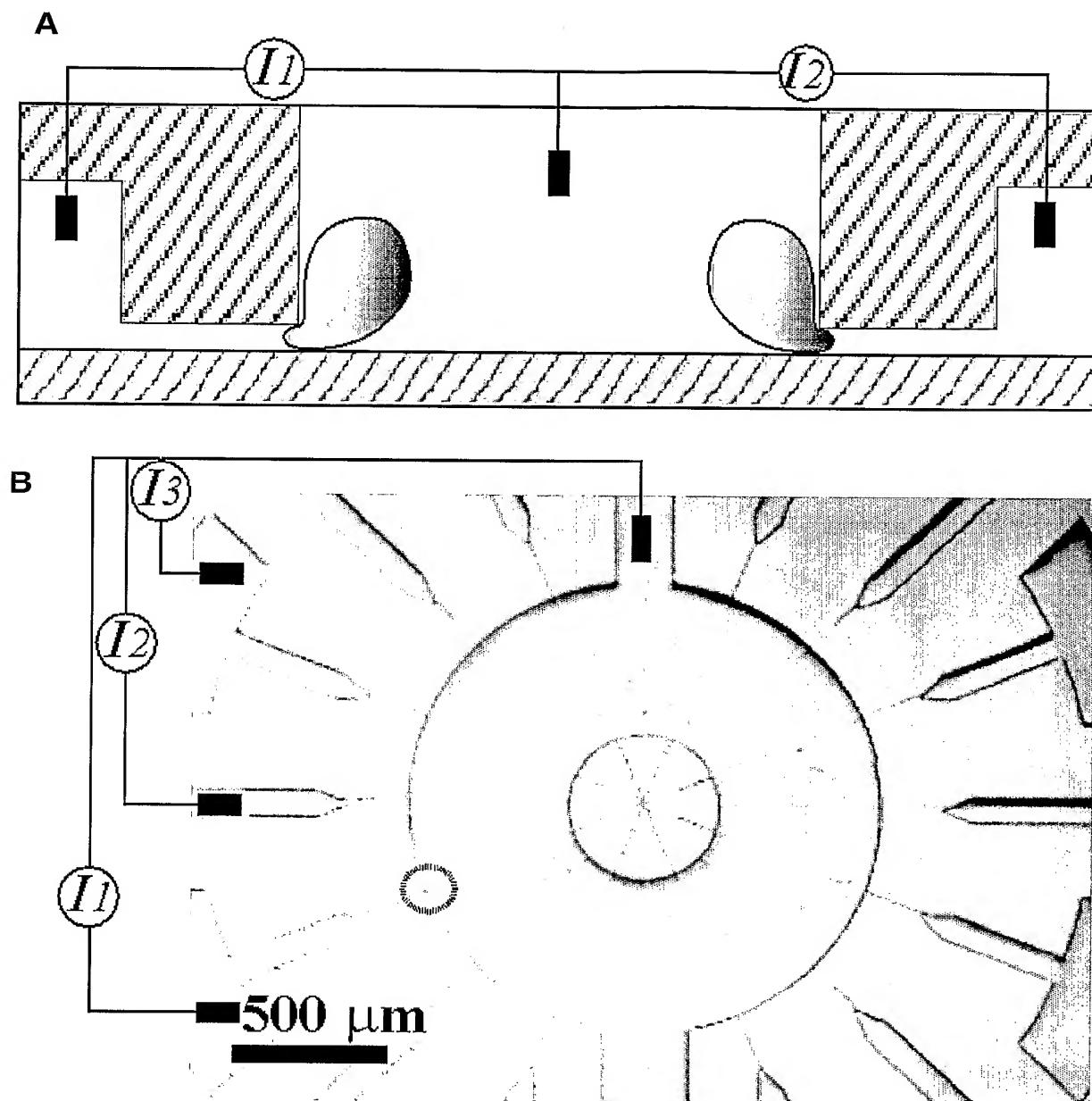


FIG. 2A & B

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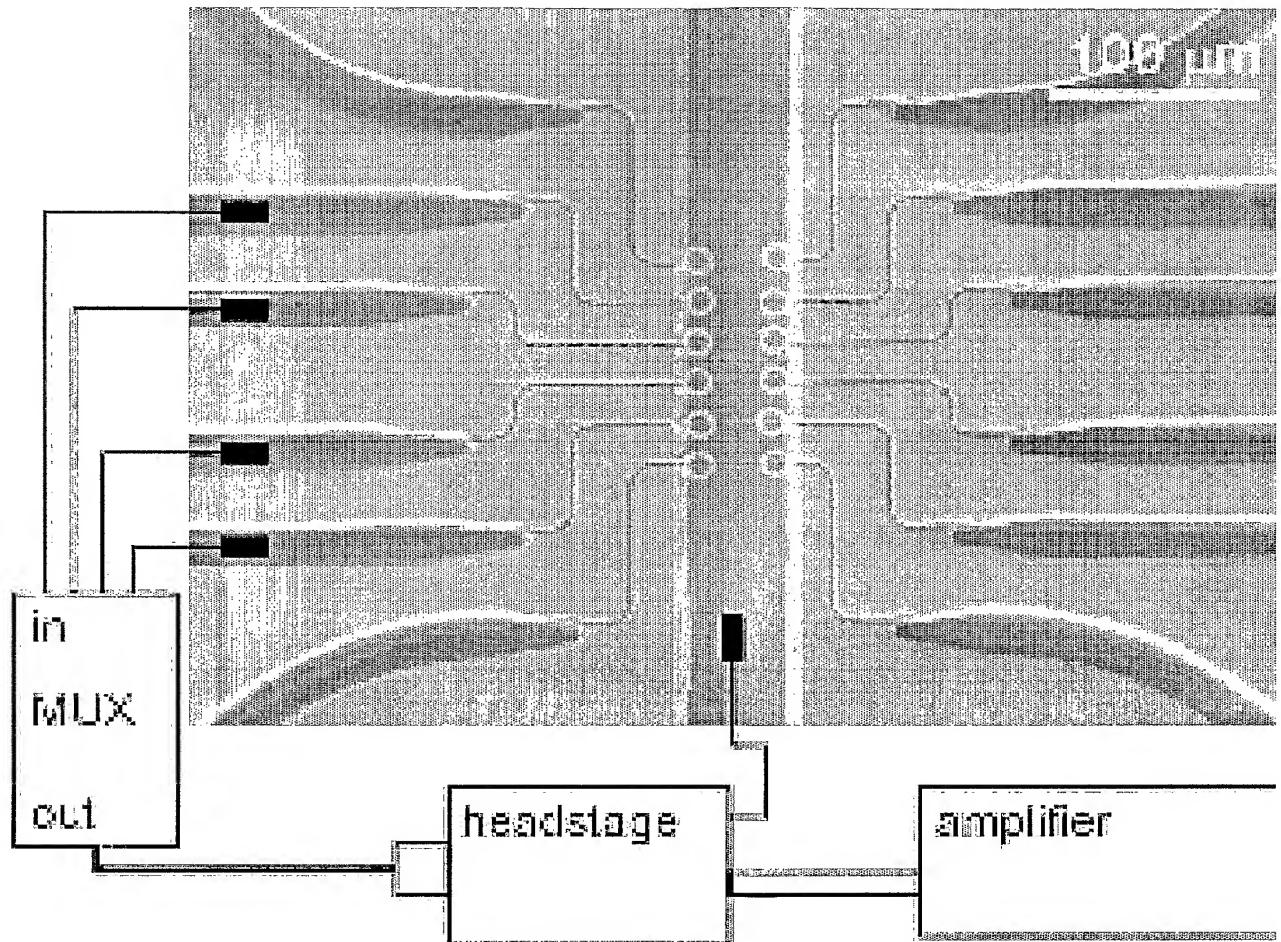


FIG. 2C

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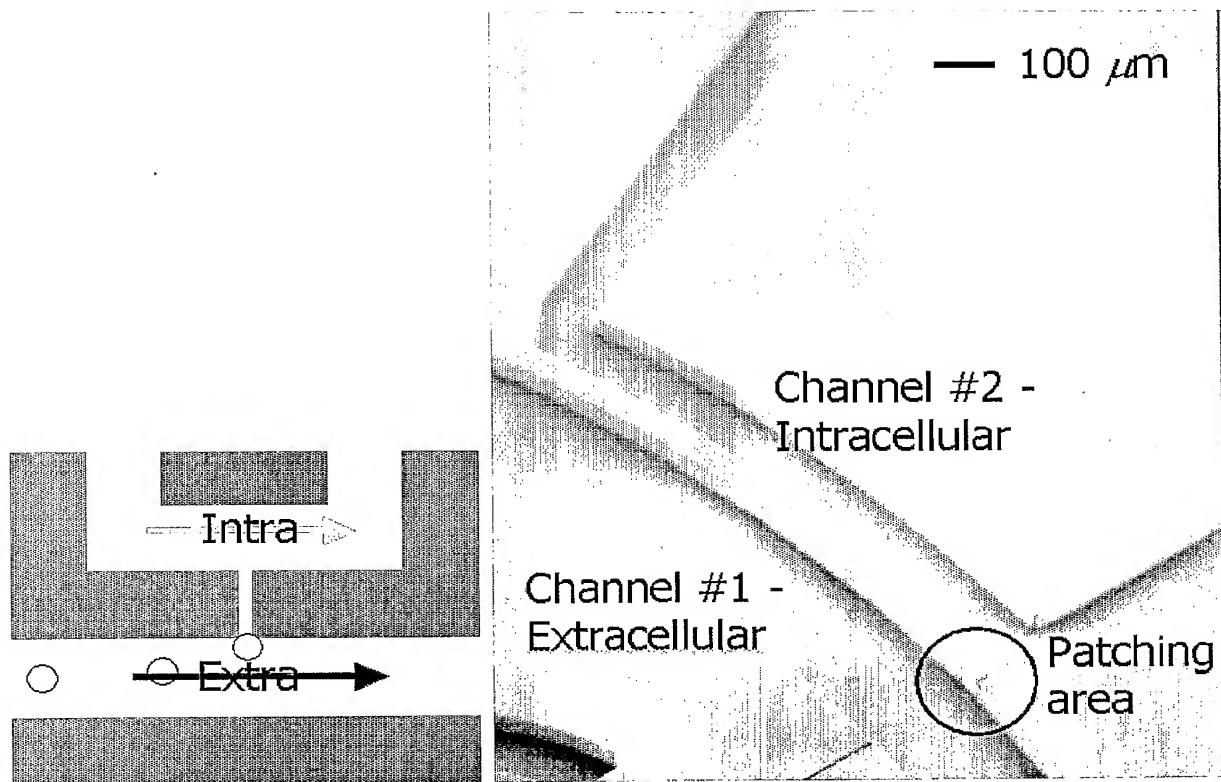


FIG. 3

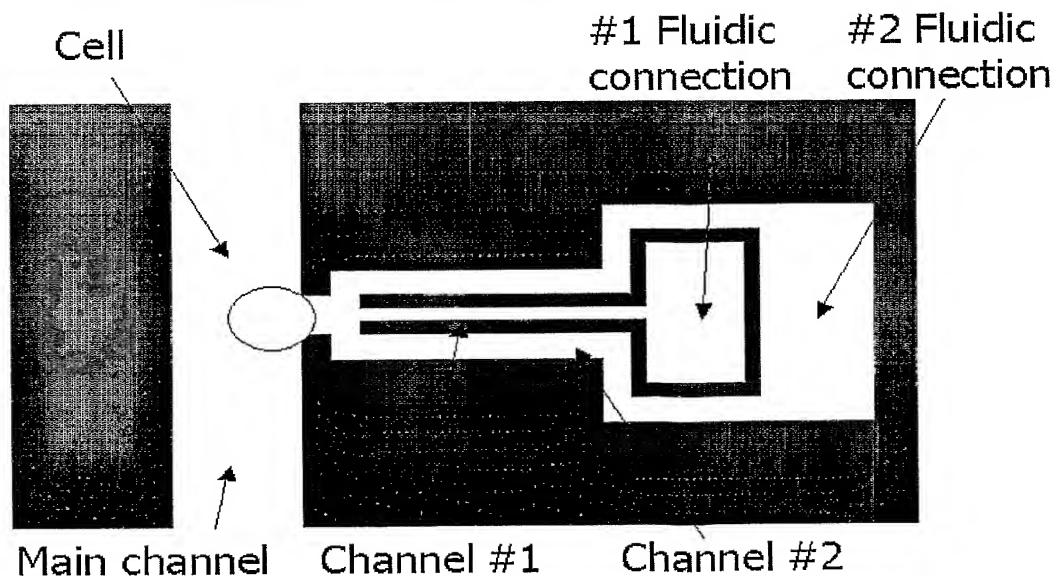


FIG. 4

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FIG. 5A

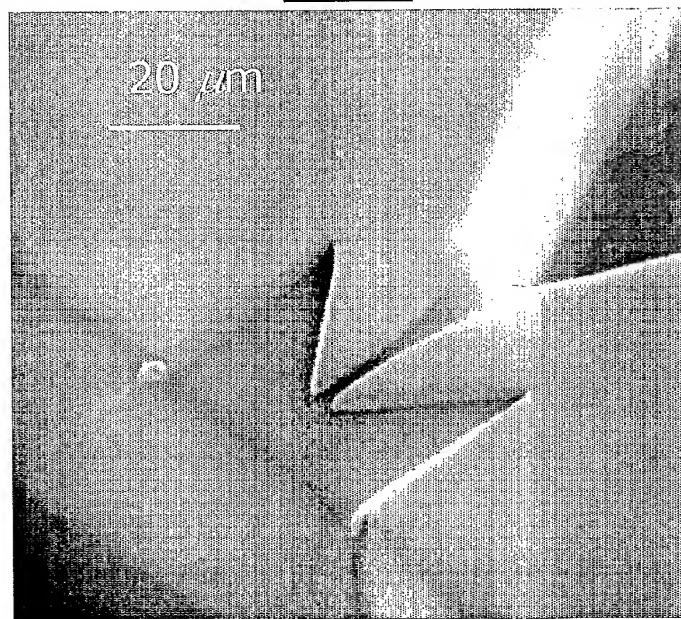


FIG. 5B

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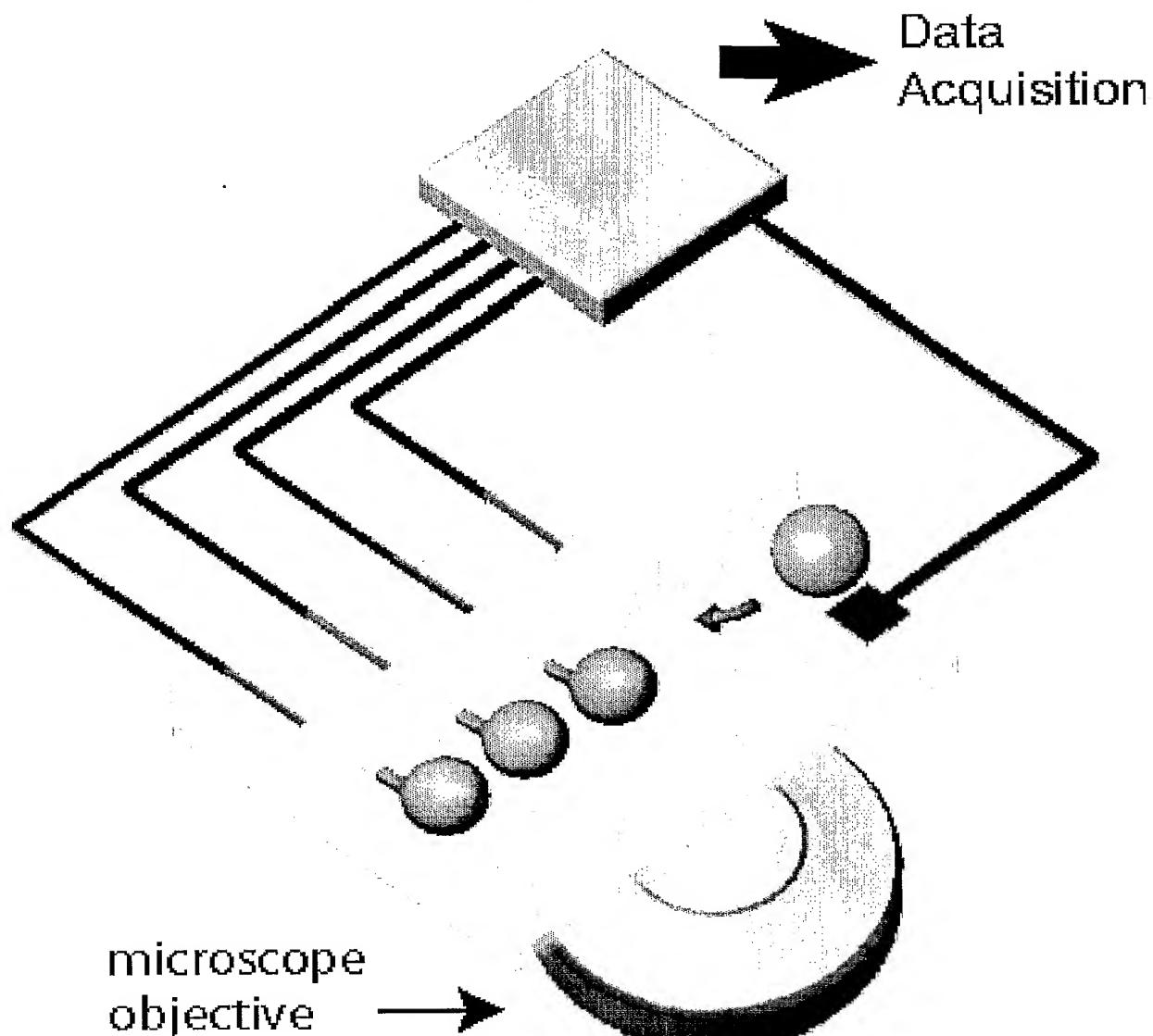
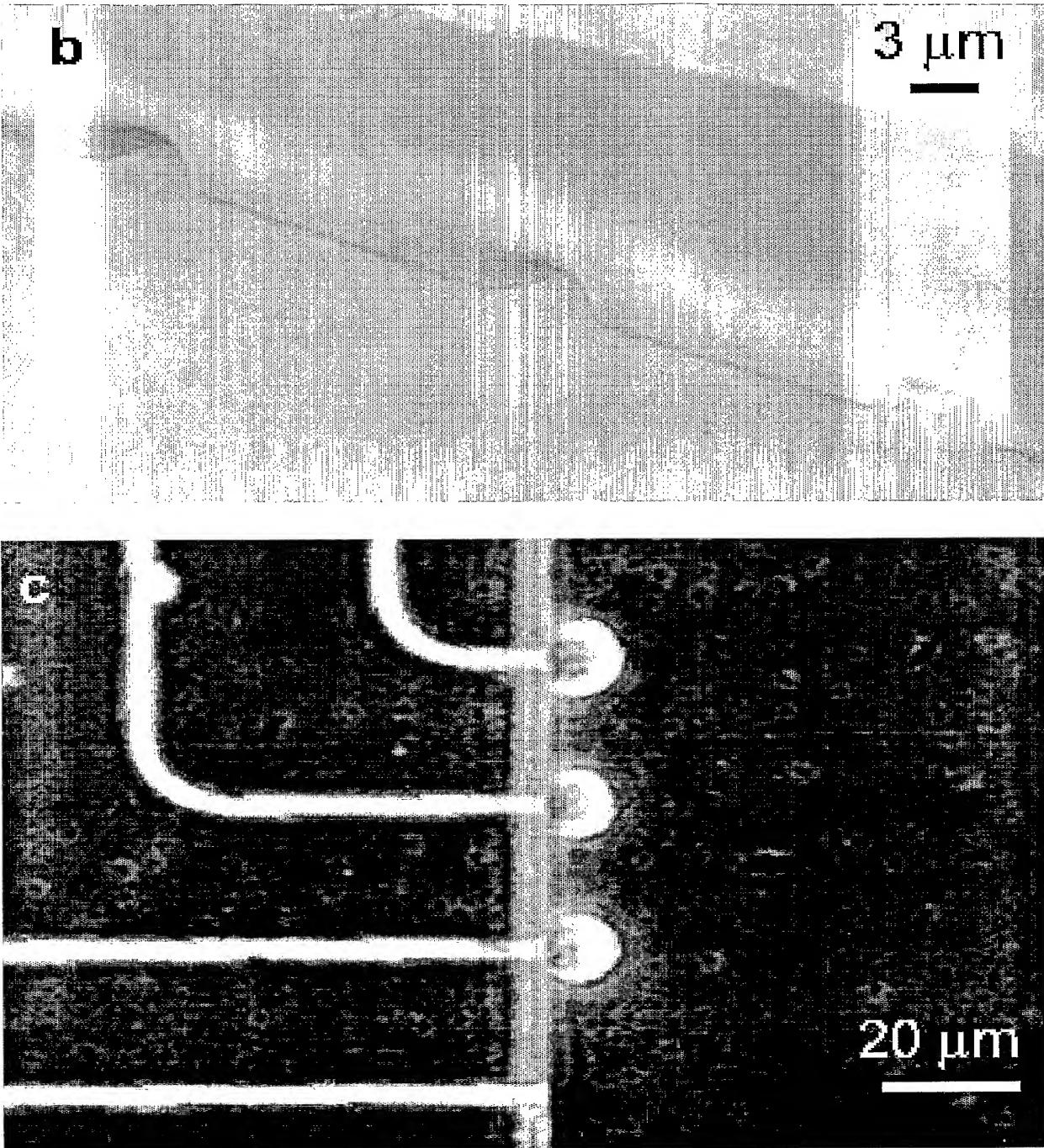


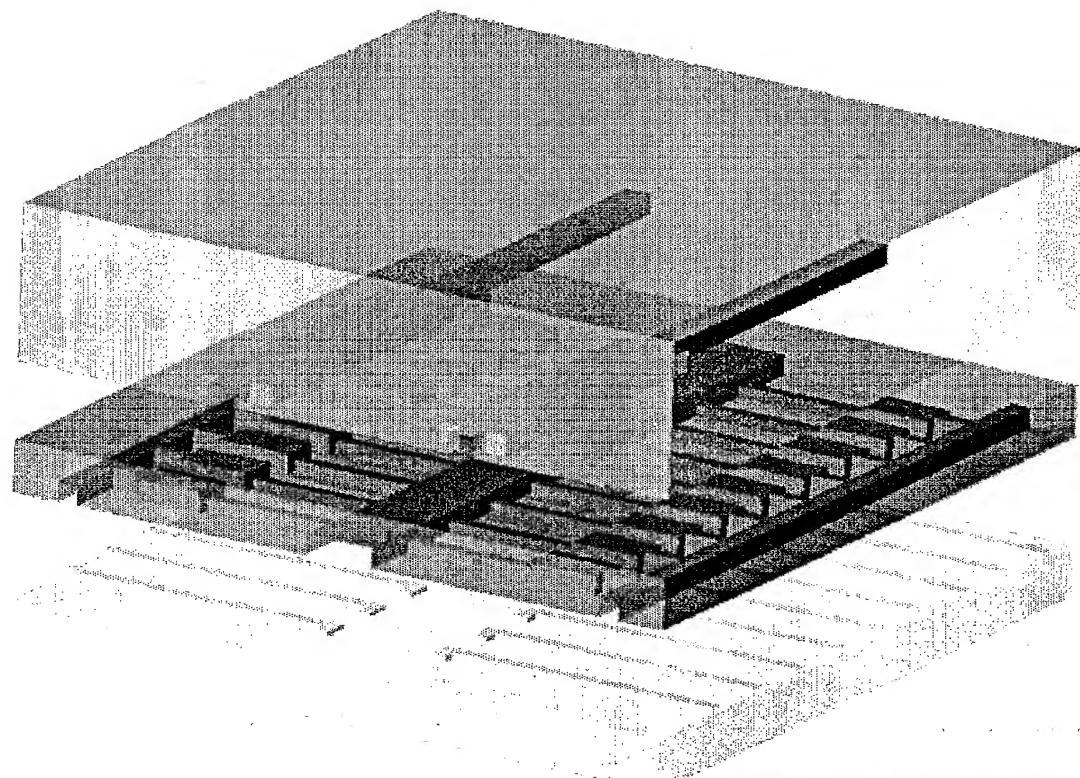
FIG. 6A

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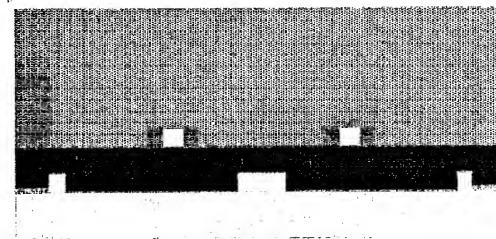


***FIG. 6B&C***

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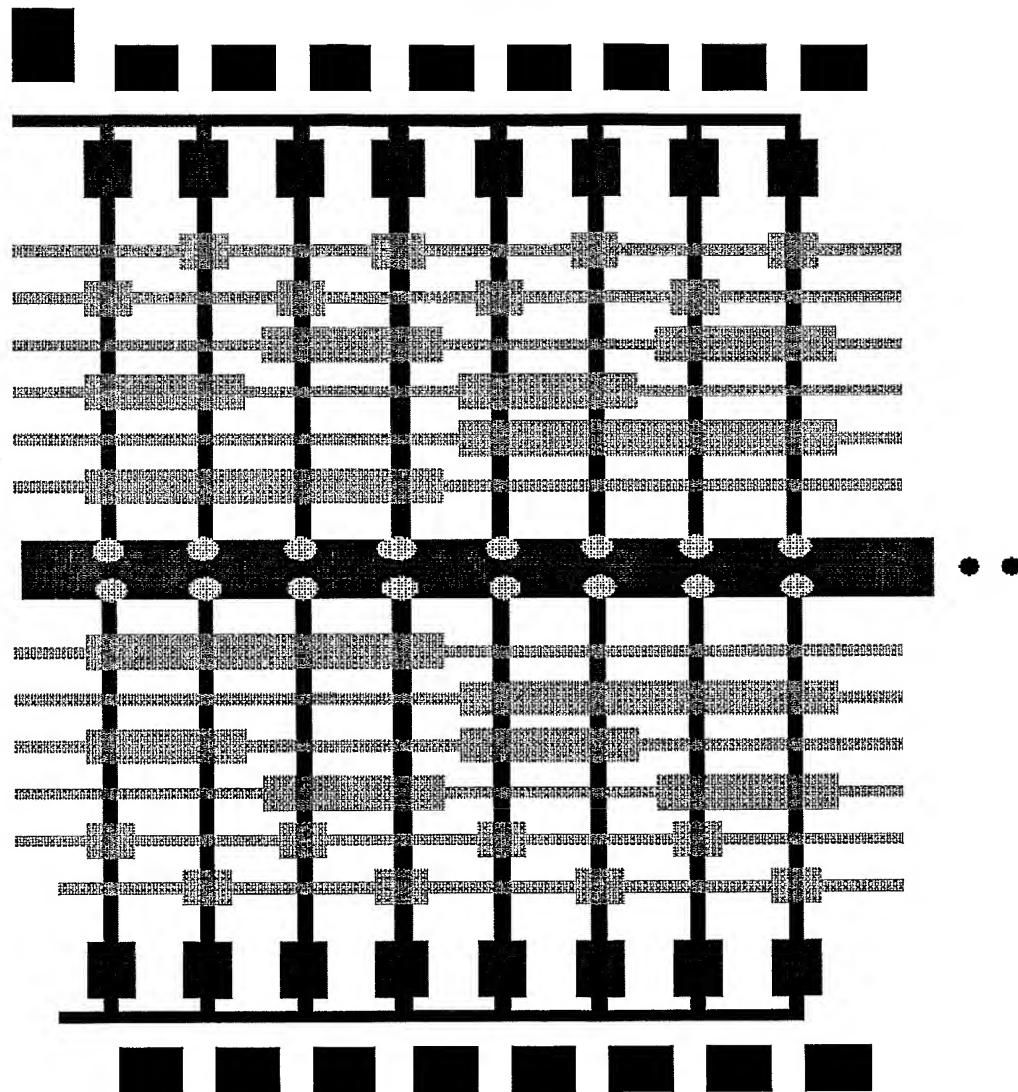


- Sample fluidic channels
- Control fluidic channels
- Integrated reference electrode
- Cells



FIGS. 7A

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- Sample fluidic channels
- Control fluidic channels
- Integrated reference electrode
- Cells

*FIGS. 7B*

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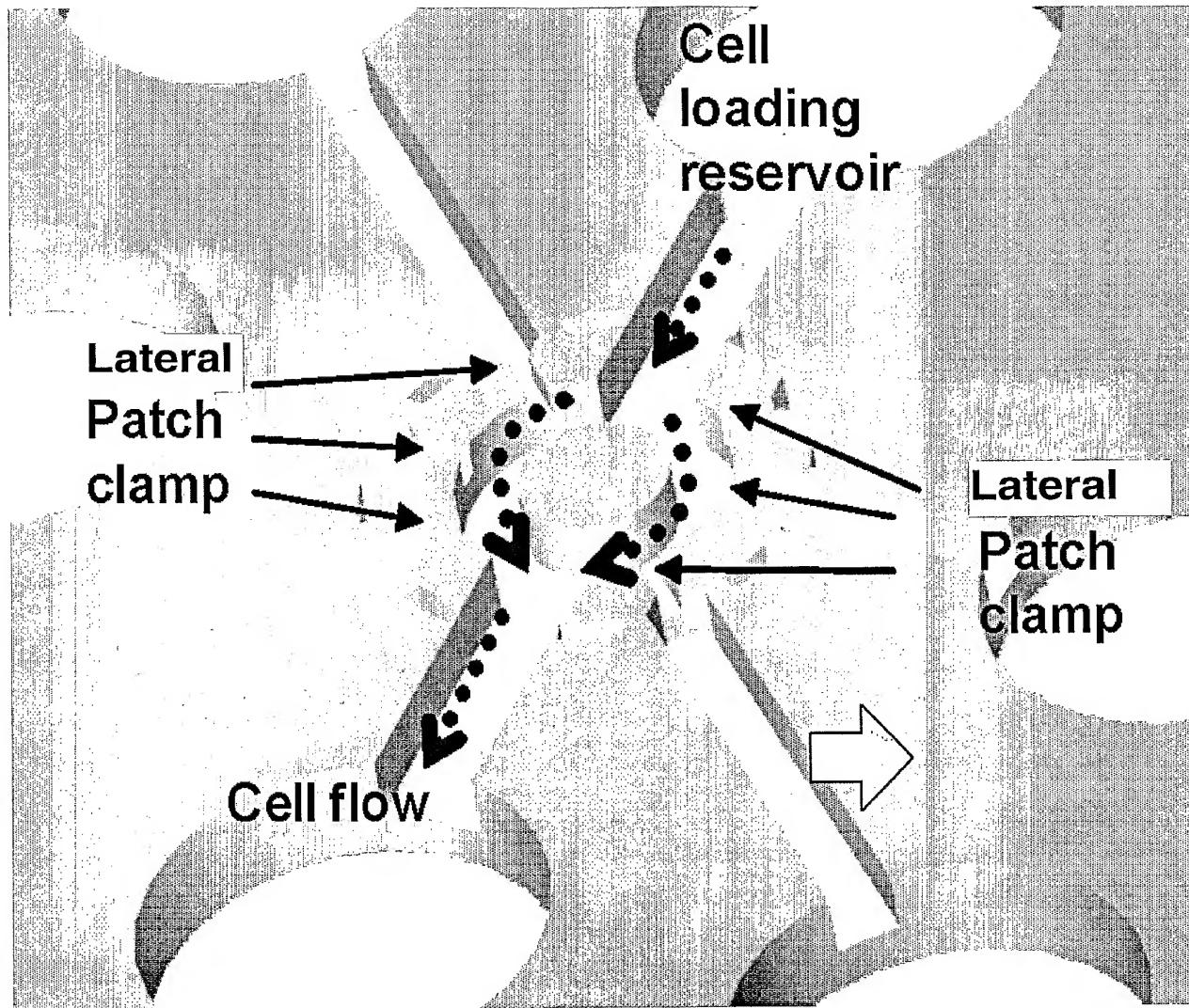
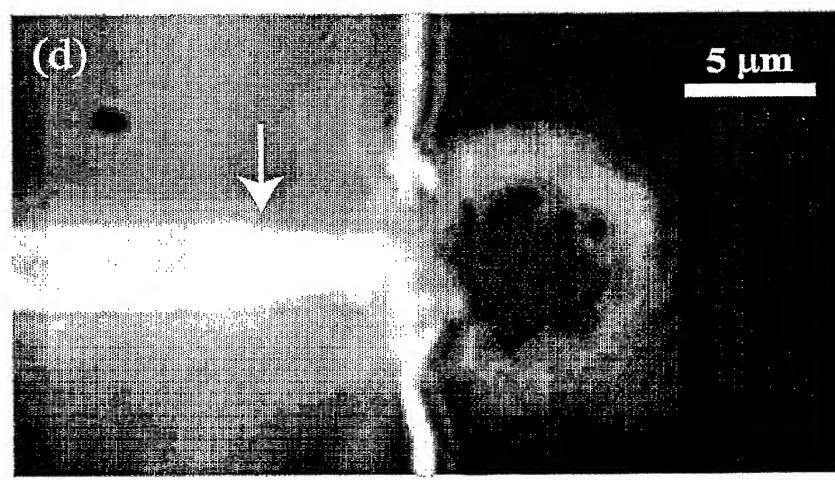
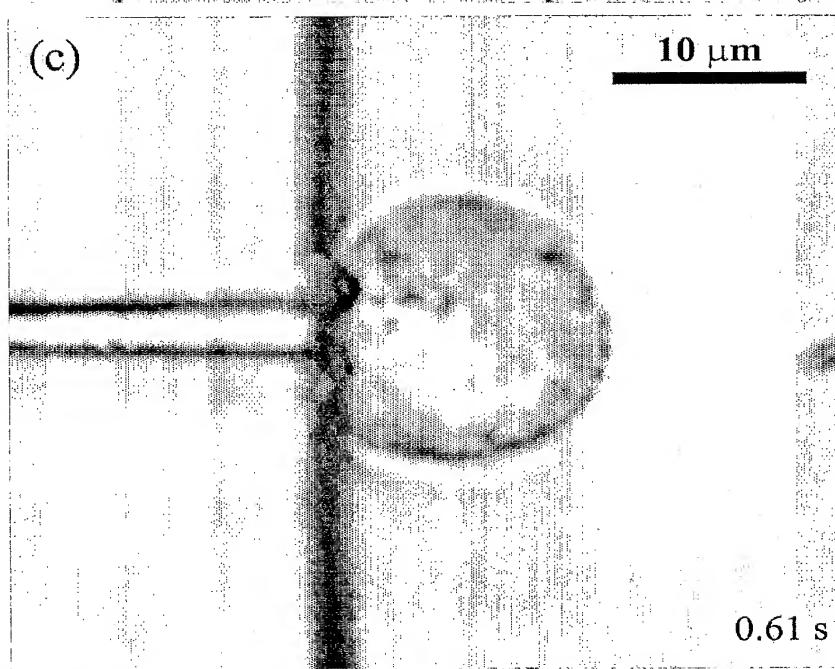
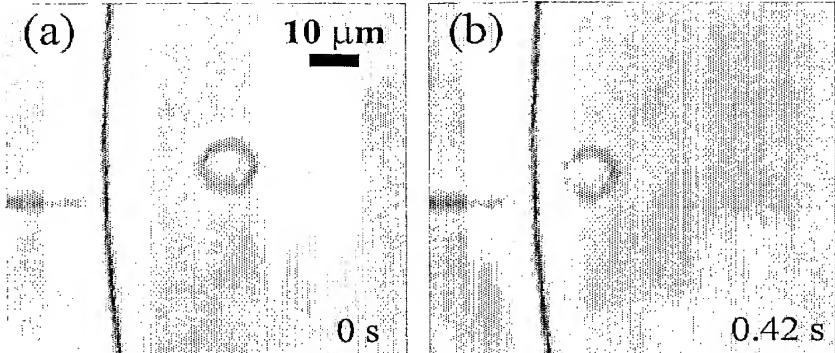


FIG. 8

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FIG. 9

(a)

Silicon Substrate

(b)

Silicon Substrate

(c)

PDMS

SU-8

Silicon Substrate

(d)

PDMS

Surface Modification

(e)

Glass

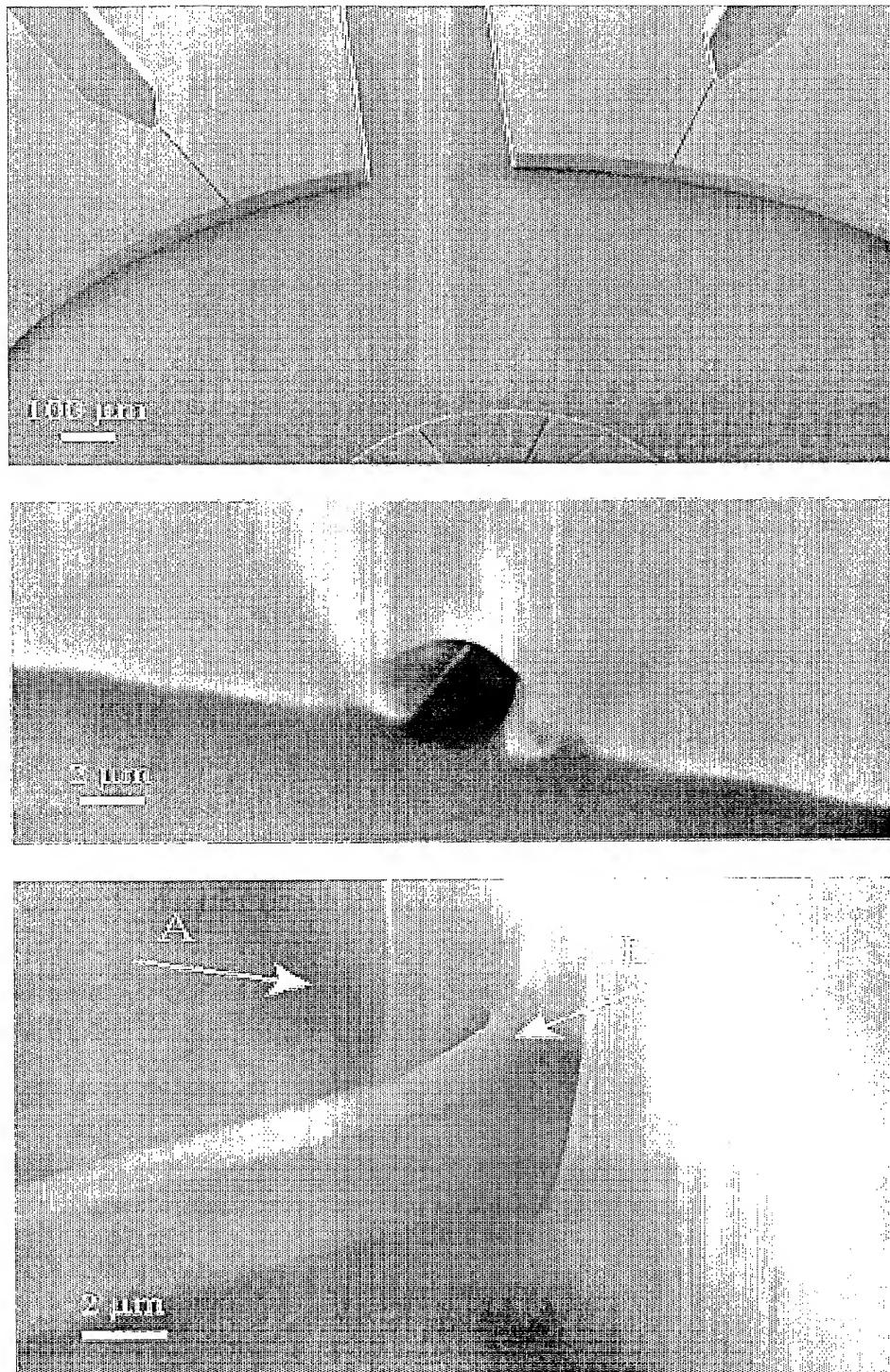
(f)

PDMS

Glass

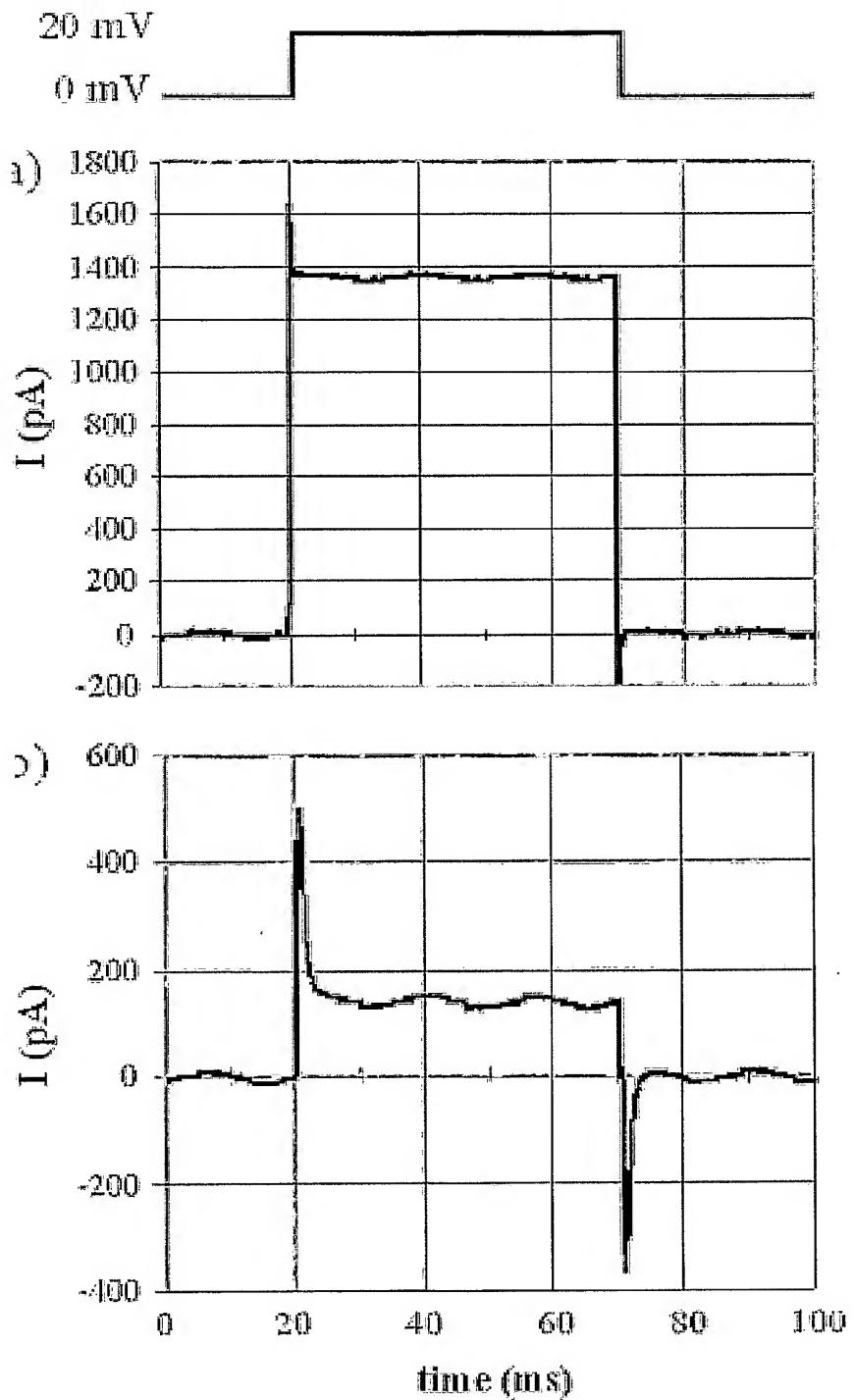
FIG. 10 A-F

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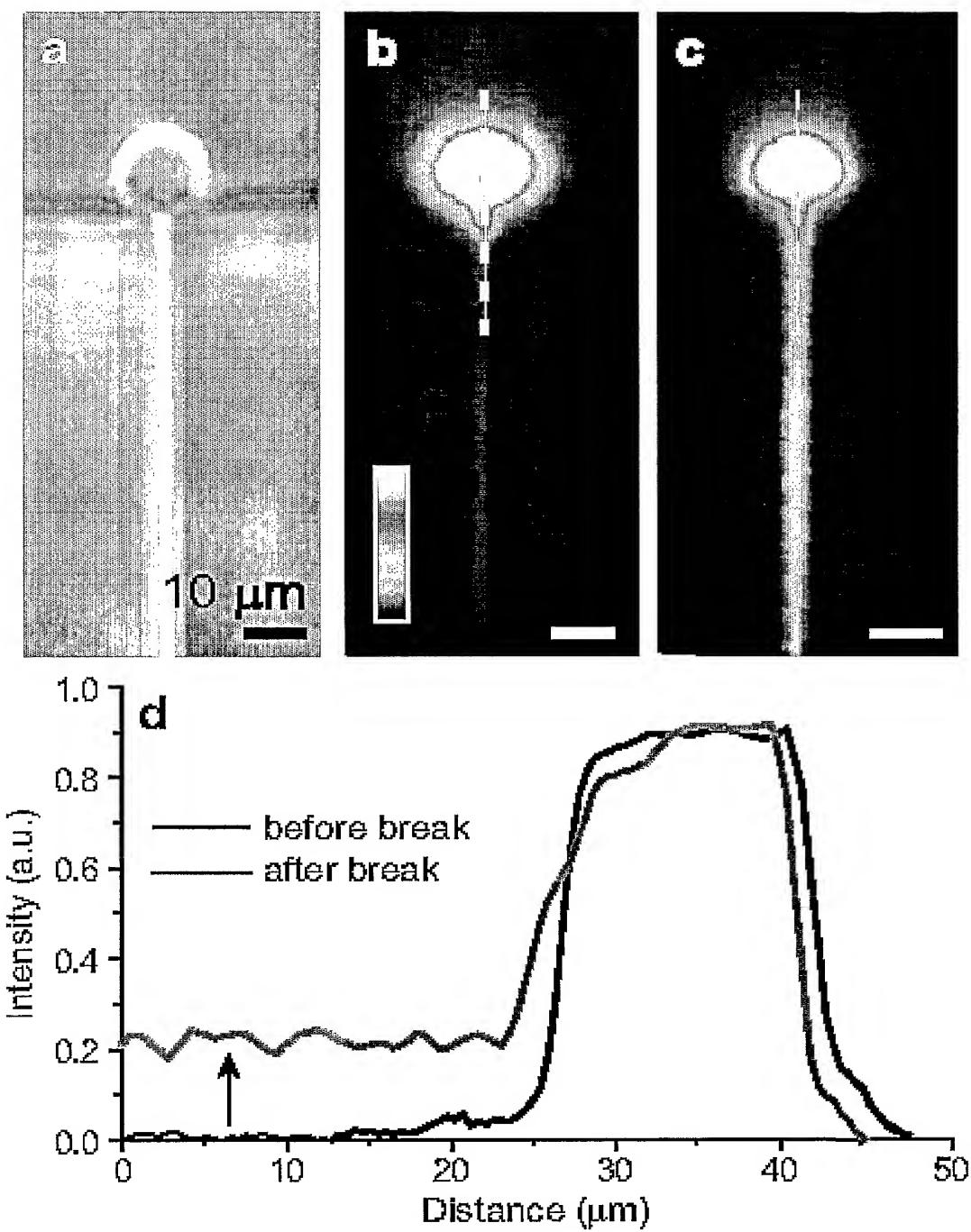
**FIG. 10 G&H&I**

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**FIG. 11A&B**

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**FIG. 12**

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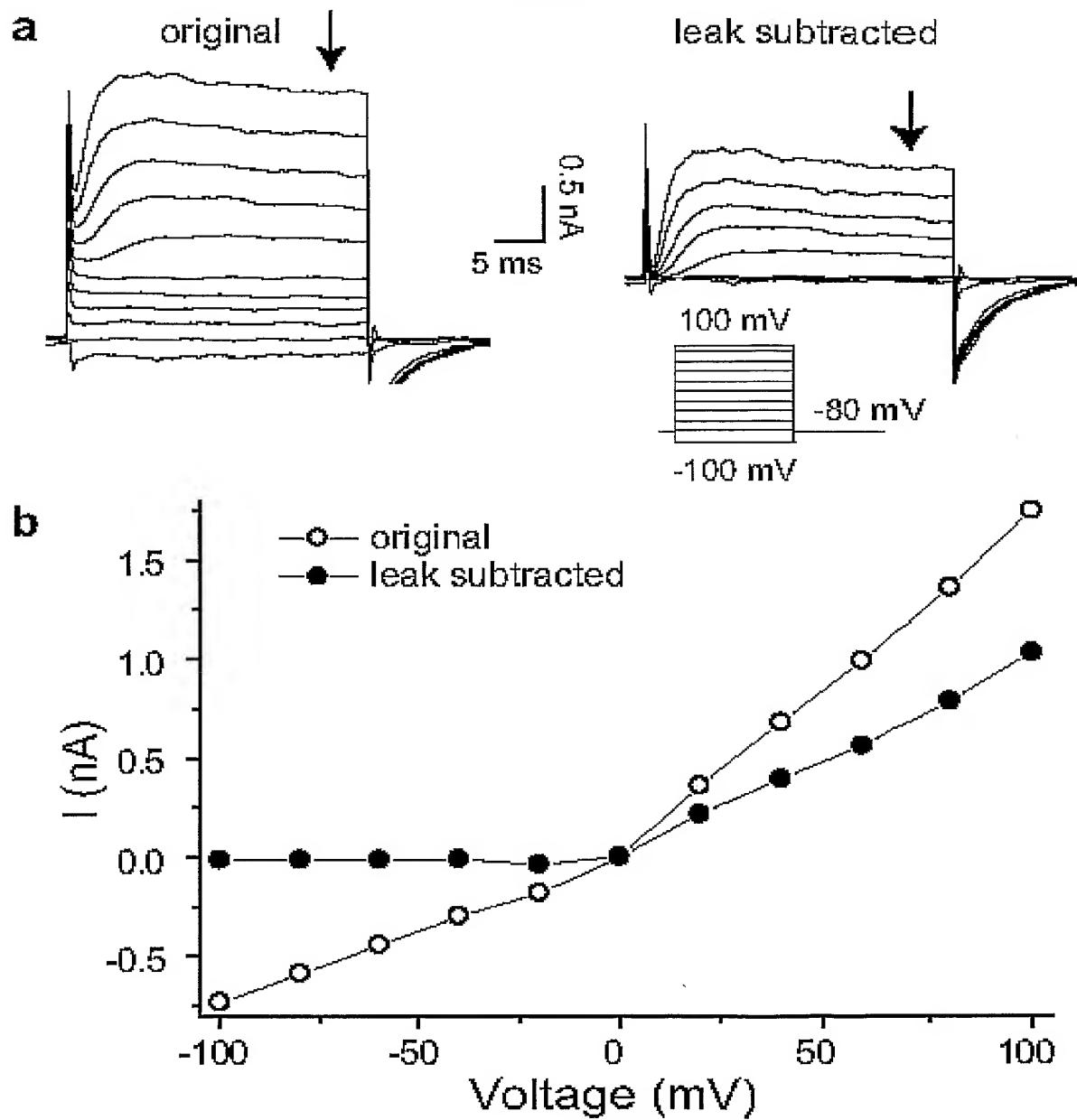
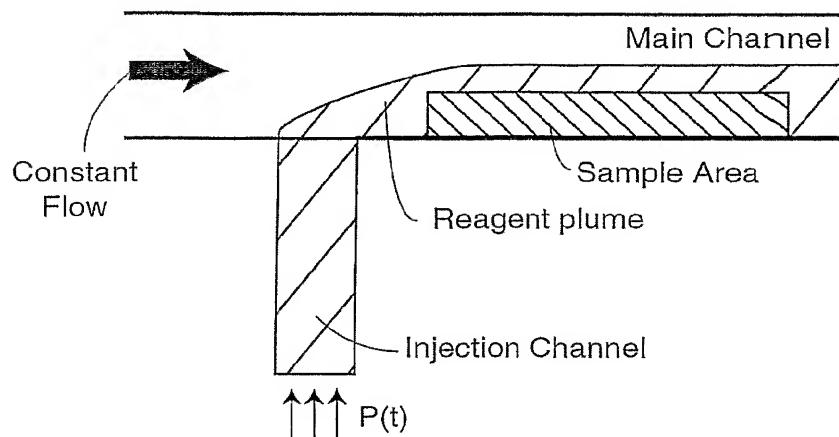
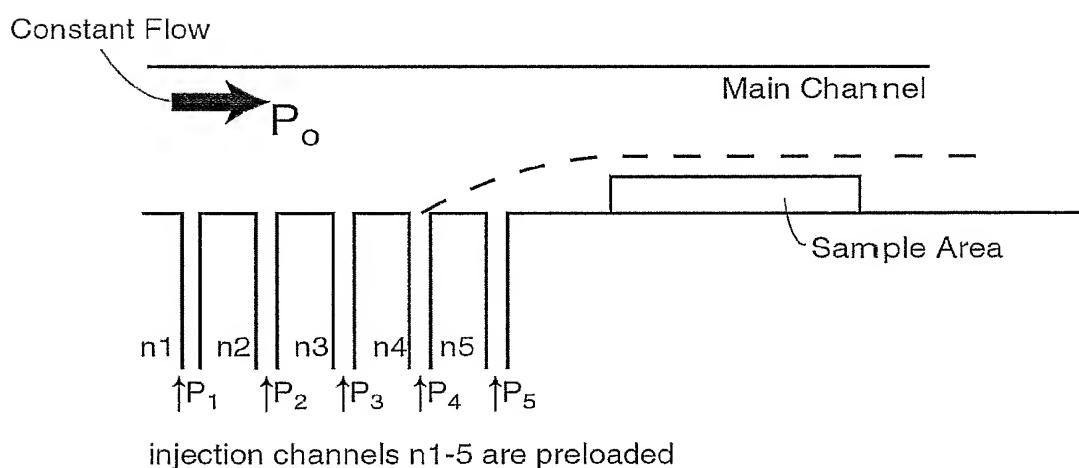


FIG. 13

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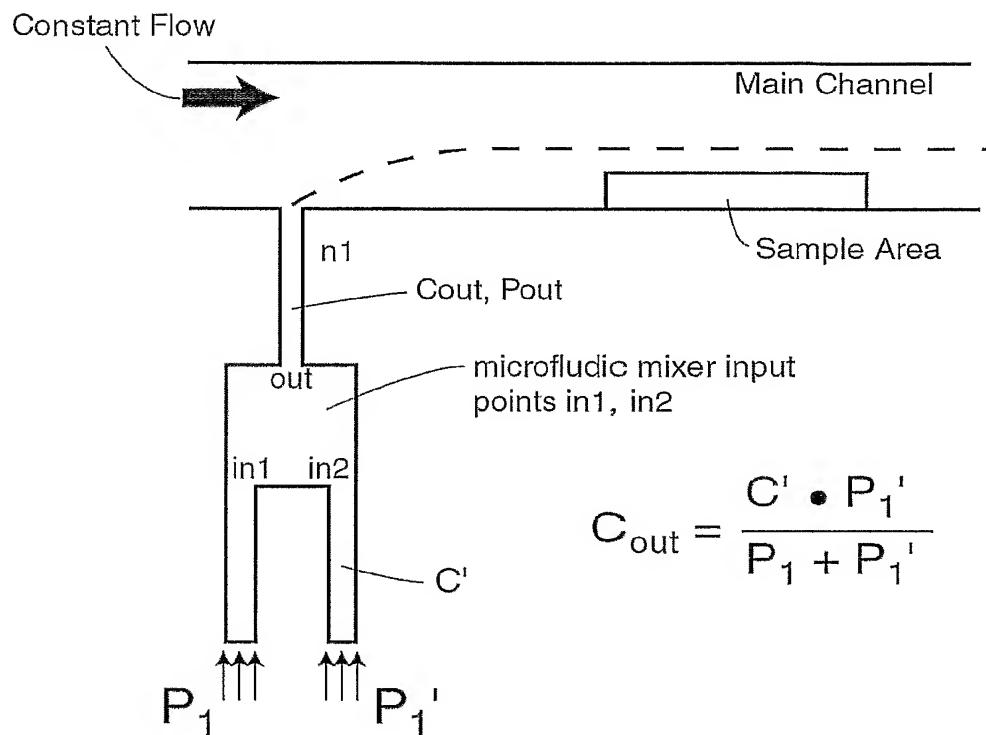
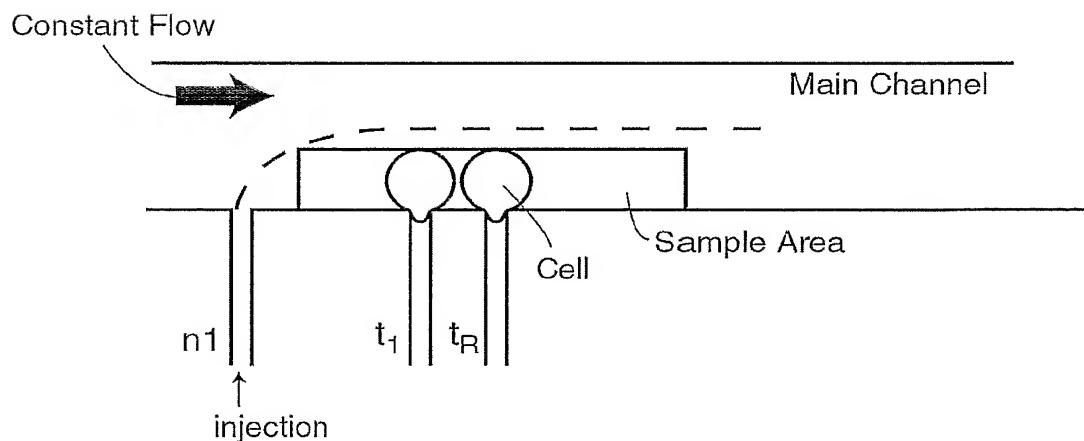


**FIG. 14**

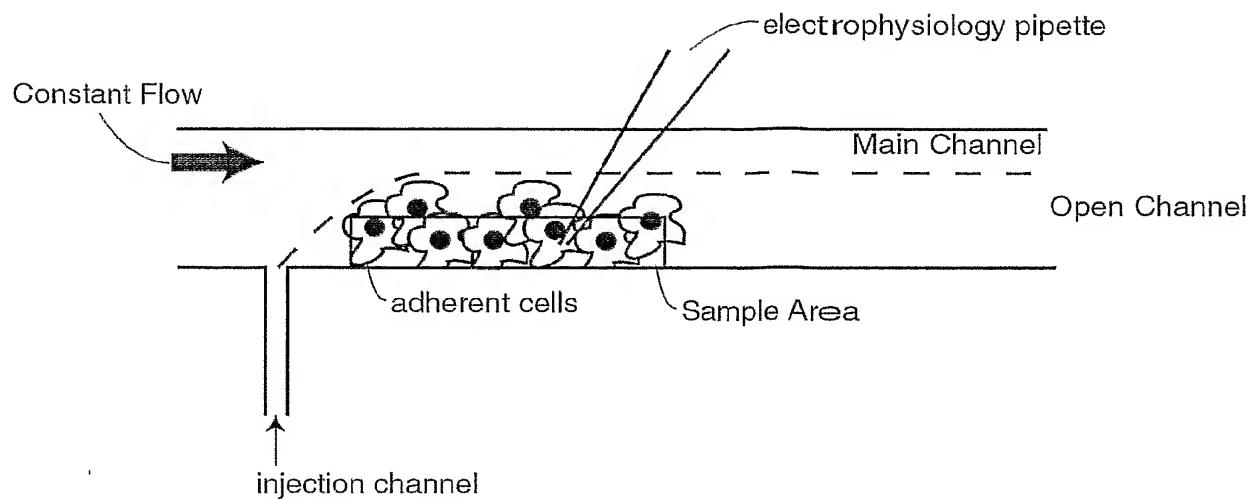


**FIG. 15**

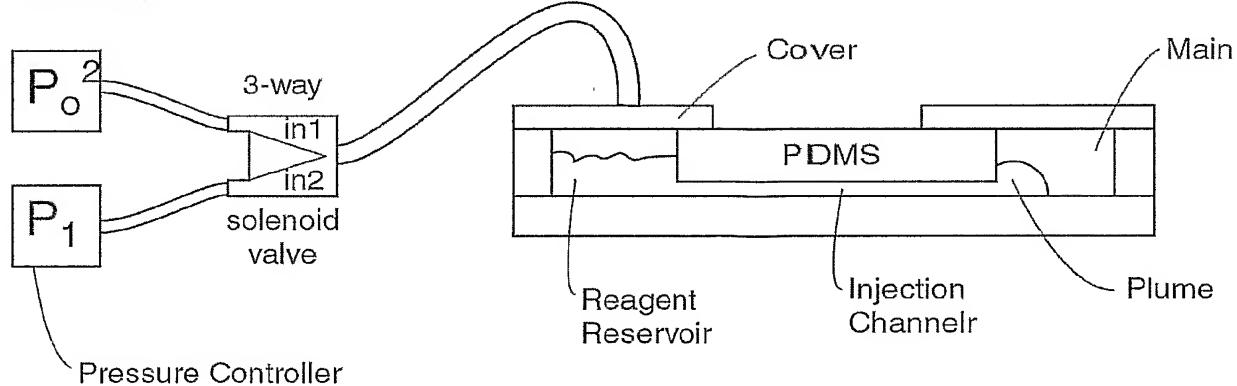
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FIG. 16FIG. 17

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**FIG. 18**

Side View:

**FIG. 19**

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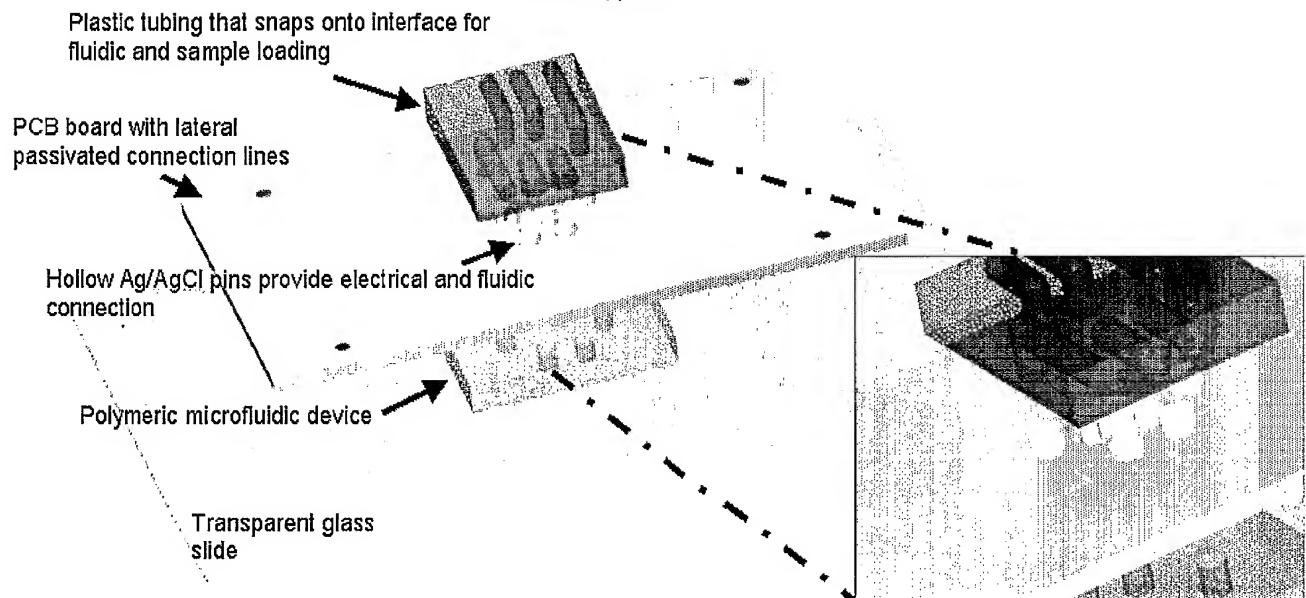


FIG. 20

Through-hole in board allows for optical measurements

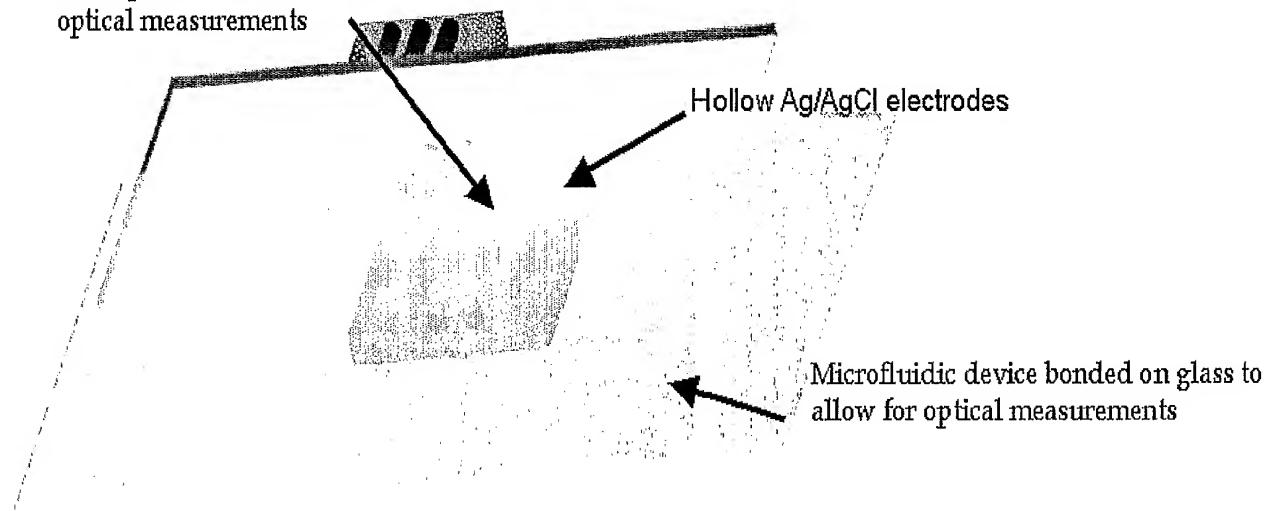


FIG. 21

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All the pieces plug  
into each other

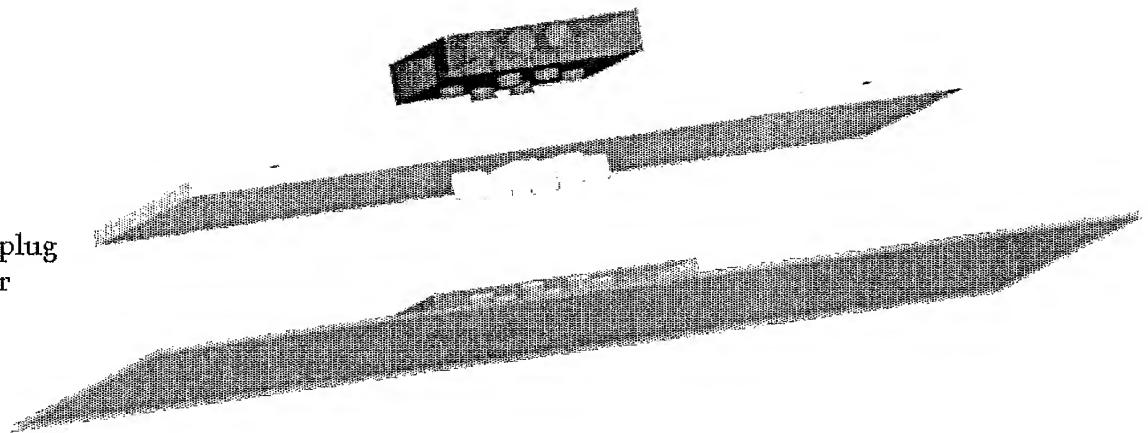


FIG. 22

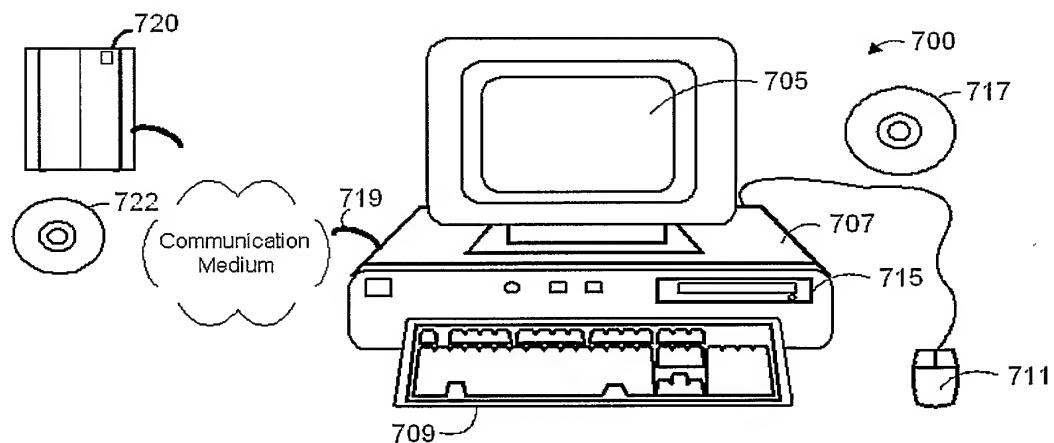


FIG. 23

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<i>Disease Classification</i>	<i>Disease</i>
<u><b>Cardiovascular Disease</b></u>	Atherosclerosis; Unstable angina; Myocardial Infarction; Restenosis after angioplasty or other percutaneous intervention; Congestive Heart Failure; Myocarditis; Endocarditis; Endothelial Dysfunction; Cardiomyopathy
<u><b>Endocrine Disease</b></u>	Diabetes Mellitus I and II; Thyroiditis; Addisson's Disease
<u><b>Infectious Disease</b></u>	Hepatitis A, B, C, D, E; Malaria; Tuberculosis; HIV; Pneumocystis Carinii; Giardia; Toxoplasmosis; Lyme Disease; Rocky Mountain Spotted Fever; Cytomegalovirus; Epstein Barr Virus; Herpes Simplex Virus; Clostridium Dificile Colitis; Meningitis (all organisms); Pneumonia (all organisms); Urinary Tract Infection (all organisms); Infectious Diarrhea (all organisms)
<u><b>Angiogenesis</b></u>	Pathologic angiogenesis; Physiologic angiogenesis; Treatment induced angiogenesis
<u><b>Inflammatory/Rheumatic Disease</b></u>	Rheumatoid Arthritis; Systemic Lupus Erythematosus; Sjogrens Disease; CREST syndrome; Scleroderma; Ankylosing Spondylitis; Crohn's; Ulcerative Colitis; Primary Sclerosing Cholangitis; Appendicitis; Diverticulitis; Primary Biliary Sclerosis; Wegener's Granulomatosis; Polyarteritis nodosa; Whipple's Disease; Psoriasis; Microscopic Polyanngiitis; Takayasu's Disease; Kawasaki's Disease; Autoimmune hepatitis; Asthma; Churg-Strauss Disease; Beurer's Disease; Raynaud's Disease; Cholecystitis; Sarcoidosis; Asbestosis; Pneumoconioses
<u><b>Transplant Rejection</b></u>	Heart; Lung; Liver; Pancreas; Bowel; Bone Marrow; Stem Cell; Graft versus host disease; Transplant vasculopathy
<u><b>Leukemia and Lymphoma</b></u>	

**FIG. 24. (TABLE 1)**